

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 01/05/03		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Cracks in the Pillar:TMD Command and Control for the Joint Force Commander				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) LTC John G. Rossi Paper Advisor (if Any):				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
<p>14. "TMD is inherently a joint mission"¹ While this may be clearly obvious to some, many others may incorrectly understand TMD to simply consist of Army Patriot. Therefore, it's appropriate to offer a general doctrinal description of TMD from which to proceed. The purpose of TMD is to counter the theater missile threat, (ballistic missiles, cruise missiles, and air-to-surface missiles), by integrating the four operational elements of TMD. The elements are; passive defense, active defense, attack operations, and TMD C4I.² While they can be performed independently, the operational elements are intended to be mutually supporting in order to best negate an adversaries missile capability. More appropriately stated, "...this threat can only be countered by the synergistic performance achieved by coordinating and integrating all four operational elements."³ At the most basic level, one can envision how each service might contribute to this effort. Starting with passive defense, service components attempt to harden their facilities and develop an effective early warning network. Army Patriot units then provide active defense by engaging incoming missiles. Special Operations Forces, along with Air Force, Navy, and Marine fighters, conduct attack operations by attempting to locate and destroy enemy missile sites. Lastly, several C4I</p>					
15. SUBJECT TERMS TMD, Command and Control, 32d AAMDC, BMD, JTMD					
16. SECURITY CLASSIFICATION OF: unclassified			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 19	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

Standard Form 298 (Rev. 8-98)

(Unclassified)

NAVAL WAR COLLEGE
Newport, R.I.

The Joint Air and Missile Defense Command: Narrowing the NMD-TMD gap and optimizing active defense capability

By

John Rossi
LTC, USA

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Electives Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

01 May 2003

“TMD is inherently a joint mission”¹ While this may be clearly obvious to some, many others may incorrectly understand TMD to simply consist of Army Patriot. Therefore, it’s appropriate to offer a general doctrinal description of TMD from which to proceed. The purpose of TMD is to counter the theater missile threat, (ballistic missiles, cruise missiles, and air-to-surface missiles) by integrating the four operational elements of TMD. The elements are passive defense, active defense, attack operations, and TMD C4I.² While they can be performed independently, the operational elements are intended to be mutually supporting in order to best negate an adversary’s missile capability. More appropriately stated, “...this threat can only be countered by the synergistic performance achieved by coordinating and integrating all four operational elements.”³ At the most basic level, one can envision how each service might contribute to this effort. Starting with passive defense, service components attempt to harden their facilities and develop an effective early warning network. Army Patriot units then provide active defense by engaging incoming missiles. Special Operations Forces, along with Air Force, Navy, and Marine fighters, conduct attack operations by attempting to locate and destroy enemy missile sites. Lastly, several C4I systems attempt to de-conflict and correlate vast amounts of automated data, provided by the numerous service radars and platforms, such as Aegis, AWACs, and JSTARS. While this description is grossly simplified and understated, and service contributions are in reality much more extensive, it does highlight the multi-service effort associated with TMD, along with its unique C2 requirements. This ultimately begs the question; what organization executes TMD Command and Control for the Joint Force Commander (JFC)?

The answer is neither clear, nor comforting. Unlike for example, Special Operations, which is also inherently joint, where a Special Operations Component Commander or a Joint Special Operations Task Force (JSOTF) would provide C2 for Special Operations in support of a JFC, TMD responsibilities are delegated to multiple commanders, both by function, and component. In many cases they are overlapping, and in some, not adequately addressed. Also, recent modifications to the current Unified Command Plan tasks US Strategic Command (STRATCOM) with increased responsibility in the regional commander's TMD arena.⁴ Unfortunately these alterations, coupled with a questionable JTMD C2 structure, could come at no worse time, specifically for two reasons. First, as ballistic missile ranges increase, TMD and National Missile Defense (NMD) must be closely coordinated. It is not unrealistic to assume that a belligerent would simultaneously attack our deployed forces and homeland with ballistic missiles, or that we will again see ballistic missiles used inter-theater, as demonstrated in the Gulf War when Iraq (CENTCOM) launched missile strikes against Israel (EUCOM). This in turn necessitates integration of C2 for these activities. Second, service contributions and capabilities are growing. In the very near future, several services will provide an active defense engagement capability. No longer will Army Patriot be the only shooter. While this represents increased firepower, it also expands the need for methodical weapon system employment (defense design). Ultimately, in order to ensure effective C2 of both the multi-service active defense capability, and NMD-TMD integration, JFCs require a Joint Air and Missile Defense Command (JAMDC).

Before proceeding further on the above stated requirement, it is necessary to set the stage for the operating framework of this discussion. TMD is a very broad and often

contentious topic, specifically amongst the services. In an attempt to remain focused on JTMD C2, and not expand the scope of this effort, some assumptions are made. The first of which deals with threat. From the 24,165 British casualties caused by German V1s in WWII ⁵, to the 26 US soldiers killed by an Iraqi Scud in 1991, history has demonstrated the lethal effects of missiles and their continued proliferation. Without detailing the classified contents of combatant commander's Integrated Priority Lists (IPL) and Joint Monthly Readiness Reports (JMRR), or listing every Unified Joint Task List (UJTL) TMD task, it is very clear that combatant commander's place great emphasis on TMD, simply because they perceive a credible threat. Therefore, it is also assumed that the threat will continue to grow, in both quantity and quality, and it is not necessary to justify missile defense requirements, be it NMD or TMD. The second assumption concerns service capability. As mentioned above, it is expected that several services will soon provide active defense engagement capability. This is not intended to generate debate on the feasibility of the Airborne Laser, when Navy Aegis platforms and Cooperative Engagement Capability will be operational, or how many THAAD missiles should be purchased. Rather, this is simply to emphasize the point that as our active defense capability grows, so too will JTMD C2 requirements. Lastly, although plenty of contractors aligned with the Missile Defense Agency are diligently developing and selling automation tools to assist operators, the focus of change here will remain on the C2 organization, not the C2 equipment. It is understood that automation tools play a key C2 role, and they too must advance. That will occur, and requires no further explanation or analysis at this time. However, JTMD organization and its associated robust C2

capability must include more than technical solutions, and that does merit additional consideration.

Readdressing the requirement for a Joint Air and Missile Defense Command to effectively command and control near term multi-service active defense capability, it is first necessary to consider current capability, in order to highlight the need for change, and by which to build recommendations. Doctrinally, no dedicated combatant command JTMD structure currently exists. The JTMD C2 architecture is fragmented, and does not optimize JTMD planning and execution. “The geographic combatant commander establishes theater guidance and objectives for JTMD and assigns and/or apportions forces and resources,”⁶ while component commanders are responsible for executing JTMD within their AOs.⁷ “The JFC normally assigns overall responsibility for theater/JOA air defense, to include active defense TMD, to the Area Air Defense Commander (AADC).”⁸ Simultaneously, the JFACC is tasked to execute JTMD attack operations in all areas outside of the component commander’s AOR.⁹ Consequently, different commanders are tasked to execute the active and attack elements of JTMD, both functionally, and by component. Even though the AADC and JFACC will usually be one in the same person (typically an Air Force officer), this does not promote effective JTMD operations. The appointed AADC is doctrinally charged with the duties of coordinating and integrating Air and Missile Defense for the command, develops and implements the joint area air defense plan, and is normally the component commander with the preponderance of air defense capability and C4I to plan and execute integrated air defense operations.¹⁰ Since active missile defense is part of this, the AADC and his staff must be capable of active defense planning and execution. Consider this in today’s

situation with Army Patriot providing the only active defense. A predominantly fixed-wing focused and experienced staff assumes responsibility for theater wide active defense, which is currently performed only by the Army. Yet, the Army's representation on the JFACC/AADC staff is the Battlefield Coordination Detachment (BCD), which has a different mission focus, and lacks the necessary expertise and resources to adequately manage TMD. It is no wonder that the joint publications further state: "Close coordination among component commanders, the JFC, and the AADC (if designated) is necessary to employ the most appropriate resources and measures to execute JTMD operations and to ensure a synergistic effort"¹¹ However, close coordination is simply not enough to address the shortcomings highlighted. This was illustrated during several war games, exercises, and real world operations, where designated wartime AADCs identified the need for help in this area. The AOC staff lacked the requisite expertise and resources to plan and execute JTMD, specifically active defense. As a result, the 32d Army Air and Missile Defense Command (AAMDC) stepped in.

The 32d is a US Army multi-component (active duty and National Guard) C2 organization, specifically designed and tailored to provide the JFC, component, and functional commanders a fully equipped and capable organization to command Echelon Above Corps (EAC) Air Defense Units, serve as the ARFOR/JFLCC JTMD integrator, and provide the AADC support in coordinating and synchronizing JTMD operational elements. Usually co-located with the Army component headquarters or Joint Force Land Component Commander (JFLCC), the 32d AAMDC will typically augment the JFACC/AADC staff within the Air Operations Center in order to support TMD planning and coordination, and ultimately provide the AADC with resident Army air and missile

defense expertise. However, it is not a joint organization. It is an army organization, which is OPCON to the Army component and/or land component commander.¹²

Routinely training and planning with Army Forces Central Command (ARCENT) and Eighth US Army in Korea, the 32d is an integral part of their operations, as well as those of the designated AADCs for the associated geographic areas and OPLANs. Exercises such as Lucky Sentinel, Ulchi Focus Lens, and Roving Sands have demonstrated the benefits of close coordination and integration between 32d and the JFACC/AADC staff. Consequently, this success has resulted in a recent doctrinal change to the TMD C2 structure, although its execution had already been in practice for several years. The first draft of JP 3-01.3, Joint Doctrine for Defensive Operations for Countering Air and Missile Threats reads:

“A Deputy Area Air Defense Commander (DAADC) may be appointed to supervise or direct complex AADC operations. For this purpose, DAADC’s do not have joint command authority but serve as their components senior DCA advisor to the AADC. For example, when Army Forces (ARFOR) have both Corps and Echelon above Corps (EAC) air defense units in theater, the commander, Army Air and Missile Defense Command (AAMDC) is commonly designated as a DAADC to integrate ground missile support to both the ARFOR and the AADC.”¹³

Again considering the active defense requirement, this doctrinal change now offers the AADC a requisite level of expertise to plan and synchronize Army air and missile defense operations within JTMD activities. Overall, the DAADC concept, and integration of the 32d AAMDC, are widely accepted and a success story. It has demonstrated an effective means to integrate Army TMD under the AADC, and to contribute to the combatant commander’s JTMD effort by serving as a TMD resource and focal point when needed. This has been most effectively demonstrated in Combined Forces Command Korea (CFCK), where LTG Heflebower, the JFACC/AADC, wanted to

couple the in-theater experience of the CFCK and AADC staffs, with the robustness and expertise of the 32d, in order to form a joint, and combined, TMD organization. To do so, he formally selected the 32d commander as his DAADC, provided all necessary coordination authority, and further integrated three distinct TMD elements through the formation of the Combined and Joint Theater Missile Operations Cell (CJTMOC). The three organizations included the Air and Missile Defense Division of the Combined and Joint Staff (small, army heavy), the Air Component Staff (7th Air Force manned), and the 32d. The re-organization greatly assisted the integration and working relationships of these elements. The plan was to train as they would fight, and peacetime integration was critical to wartime success. DAADC authority allowed 32d to greatly influence planning and execution of TMD activity on a daily basis. No longer would they have to wait for a war game to identify problems and solutions. Daily coordination is now the norm, and the 32d commander is more closely linked to the peninsula. Such improvement has been noted in the CENTCOM AOR as well, where the 32d commander currently serves as the DAADC. However, even with this enhanced and formalized integration, the organization is extremely Army heavy, and is far from adequate to meet the near term demands that will be imposed by sister service active defense capability, for which the AAMDC has no expertise, nor authority or potential to control.¹⁴ The concept is sound, but will only work as long as active defense is Army specific. However, as highlighted earlier, active defense will soon become multi-service.

This multi-service active defense force must then be designed and employed to provide the JFC with optimized system capability while sustaining resources. Successful active missile defense implies systems and organizations working together to maximize

effectiveness and efficiency, ultimately destroying incoming missiles without wasting precious US assets. The sum of all parts is greater than the individual elements acting in isolation. A JAMDC would ensure this. Given the scenario for defending numerous assets from a missile attack, a standing command with multi-service tactical and technical expertise, could pre-plan, then war game, the active defense, until it was optimal. Rather than trying to rapidly build a missile defense for a contingency, plans would already be on the shelf, to include force flow. Changes in active defense force flow would not then be considered a monumental challenge to overcome, since planners would already be formed, and could rapidly adjust the design to coincide with forces available. This is much more advantageous than simply training and coordinating together on a routine basis, meeting at a quarterly conference, or finding each other in theater on a designated C-Day. This level command would also promote a solid relationship with agencies such as Missile Defense Agency, Joint Forces Command, and the Joint Theater Air and Missile Defense Organization. Consequently, details on weapons system specifications and capabilities would immediately be known and applied for planning and execution, ultimately enhancing the defense. Additionally, input from a JAMDC to these agencies would carry great weight and promote joint capable systems in the future, while limiting service parochialism. The command would also promote truly joint active defense planning, rather than a stove piped fashion. Without it, the potential exists for unprotected critical assets, or assets protected to an unacceptable level. Exercises such as Nimble Shield 98 and CNW Global TMD War Game 03 have demonstrated this point. In the case of Global TMD War Game 03, one could observe several service TMD experts developing a defense design for a notional contingency. While they demonstrated

proficiency in effectively positioning their specific service platforms, the group was less capable of determining the optimal combined capability of the platforms. Rather, assets were divided by service, and defenses were developed for each. Undoubtedly there are several ways to employ a joint missile defense force, but only one is optimal, and chances of realizing this with isolated or ad hoc planning are minimal. Most often missile defense forces will be limited, therefore, it is incumbent upon planners to optimize capability by design. Planners must also be prepared to rapidly change design, as change will result from threat action or friendly force activity, such as non-mission capable systems. In order to avoid sub-optimizing service capabilities, planners must train and exercise together, understand how systems complement and mutually support each other, and internalize the joint approach to executing missile defense by formalizing the process and organization. Just as 32d is represented by several Army specialties such as Military Intelligence, Special Forces, Field Artillery, and Air Defense Artillery, in order to ensure integration and apply expertise to the respective TMD operational elements, a JAMDC would do the same with the services. Additionally, an established JAMDC with corresponding authority would ensure that component commanders do not randomly remove any of their platforms for alternate missions. Since platforms such as Patriot and Aegis are both air and missile defense capable, component commanders may want to retain these assets under their control and direct priorities and missions. Obviously this could degrade an integrated missile defense if a platform is relocated or utilized for another purpose. Just as MDA is currently ensuring compatibility and interoperability of US Missile Defense Systems by serving as a forcing function for joint development, acquisition, and fielding, and the Joint Interface Coordination Officer (JICO) is a recent

organizational solution to planning and maintaining the complex integration of the various tactical data links in use on today's modern battlefield, the JAMDC would correspondingly produce optimum joint weapon system employment.

The second significant benefit of a JAMDC would be to greatly bridge the still existent gap, between TMD and NMD. "Theater plans and operations should be coordinated and integrated with bi-national and strategic plans for the defense of North America"¹⁵ This quote, taken directly from JP 3-01, Joint Doctrine for Countering Air and Missile threats, has never before been more appropriate than in today's environment, where TMD and NMD are so closely related. In many ways, these formerly distinct activities are becoming united. First, the term Ballistic Missile Defense is now routinely used to incorporate both TMD and NMD. This stresses the point that their planning and execution must also be synthesized. One need only consider open source ballistic missile capabilities to understand the need for this integration. Several nations, to include China, Russia, and North Korea, possess robust and flexible ballistic missile inventories capable of threatening troops and assets within theater, adjacent nations, and the continental United States. While intent is not addressed, the potential alone emphasizes the importance of constructing a seamless BMD. Next, NMD is no longer a concept. Although many Americans always believed that the US already maintained a NMD capability, it was not the case at all. Only recently has President Bush championed the pursuit of a NMD capability, and since that time the nation has witnessed a rapid advancement in the development of ground based and space based hardware and its associated testing. Consequently, there is an understandable growing interest in the NMD-TMD relationship. Lastly, as a result of 9/11, the Unified Command Plan was

amended in October 2002 to better align worldwide responsibilities in mission critical areas, to include ballistic missile defense. Specifically, US Space Command, which was historically responsible for the air and missile defense of the US, was inactivated, and its responsibilities were divided between the newly formed US Northern Command (NORTHCOM), and STRATCOM.¹⁶ The STRATCOM mission statement now reads: “Establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives. Provide operational space support, integrated missile defense, global C4ISR, and specialized planning expertise to the joint warfighter.”¹⁷ Regarding the integrated missile defense responsibility, although centralized planning and coordination responsibility will reside with STRATCOM, NORTHCOM and other regional combatant commands will defend their specific areas.¹⁸ While the above listed actions attempt to codify responsibility and integrate NMD-TMD, it also creates some considerable JTMD challenges, echoing the need for a fully capable JTMD C2 structure.

Although the UCP modifications attempt to simplify responsibilities between the commands and further reduce the distance between NMD and TMD, some gaps still exist. For example, while a regional combatant commander is responsible for defeating the theater missile threat, which includes cruise missiles, and STRATCOM has responsibility to integrate missile defense, it does not have a role in cruise missile defense. Hence, the two organizations are not optimally aligned, and special procedures must now be considered and developed within theater to counter this dangerous missile threat. Next, although regional combatant commanders are responsible for TMD in their respective AORs, STRATCOM’s responsibility to integrate missile defenses implies

effectively coordinating defenses for a distant theater and CONUS, or for example, CENTCOM and NORTHCOM. This not only requires prioritizing one of the two for resource support, but also suggests maintaining the resident expertise and personnel to construct, operate, and maintain such a defense, for each possible theater combination. A potential scenario could include a theater commander engaged in operations against a hostile nation with the full range of ballistic missile capability, and another regional commander engaged in operations verses a nation with less capable ballistic missiles, but still enough to threaten nations in the adjacent theater. This scenario alone requires tremendous planning and coordination between the theaters, and real time execution capability to handle the rapidly changing environment. While STRATCOM will most likely enhance their manning to support the newly assigned missions, only a dedicated, resourced, and specialized organization like a JAMDC can truly fill the remaining NMD-TMD voids. As with TMD, this can't be a part time or ad hoc duty. The complexity associated with inter-theater coordination, weapon system expertise, national sensor access, and threat capability, dictate full time planning, rehearsal, and integration of effort. NMD expertise is not enough. The operators must fully comprehend the in-theater TMD capability and how it links with CONUS assets. This is very similar to theater planners understanding multi-service capability to maximize effects. In this case, it is not unrealistic to presume a "hand off" capability will exist by which an in-theater asset shares track information with a CONUS based platform, and together they determine which platform should engage, and when. That capability already exists between certain service platforms. For example, Navy CEC and THAAD-Patriot regularly demonstrate the potential to share and pass track information. Although it is

extremely complex within theater, this type of integration on a global scale will dictate greater application of resources, including personnel. In essence, something more than the term BMD and a revised UCP are required to overcome the NMD-TMD delta and enhance the combatant commander's JTMD capability. The JAMDC is the best solution.

There are however some drawbacks associated with the JAMDC, and possible alternatives to consider. The first of which is to continue on course, follow current doctrine, and allow the AADC, JFACC and component commanders to execute JTMD. While this appears to be acceptable for now, and generates the least amount of change, it is not suited for the complexity associated with near term active defense. Even with the 32d in place, a joint headquarters is needed for both this purpose, and to work NMD-TMD integration full time. A numbered Air Force staff (JFACC/AADC wartime staff) is simply not suited for this, and neither is the Army's 32d AAMDC. One could suggest that since the JFACC plans and integrates multi-service air assets effectively, the AADC could do the same with missile defense capability. However, missile defense systems are much more limited, and so is the expertise. Another consideration is using the combatant commander's TMD cells to fill this role. Most regional commanders maintain a small TMD staff element, typically zero to five personnel, and usually manned in proportion to the regional threat. Unfortunately, most of these cells are intended for a different purpose. Since the regional commander has subordinate elements to execute TMD, his cells are typically formed to provide situational awareness, conduct staff actions, and coordinate with MDA regarding future capability. Bolstering every regional commander's TMD cell to handle theater and NMD integration may not be possible, or required. The continuous requirement to resource and sustain the cells would prove to be unrealistic in today's

fiscally constrained environment, and based on threats in the region, the cell may not really be necessary. Lastly, as an option, the AADC could potentially appoint a DAADC from each service. In this case, resident expertise for service platforms and capabilities would reside in the AOC, and could develop necessary plans and missions for their forces. However, although this would be executed together, the desired synergy amongst platforms may not be achieved if the elements don't fully comprehend the methodology behind designing, employing, and sustaining a joint active defense. While all of these options offer various forms of capability and potential, they do not fulfill the C2 requirements to best support the JFC's needs. A JAMDC can, but it does come with a cost. First and foremost are resources. Any full time JTMD structure will be manpower intensive (both military and civilian), require regular purchase of cutting edge technologies, dictate routine exercise in and out of theaters, and mandate a well educated force. However, just as the Army accepted risk and burden with the development of the 32d, in the long run it has proven to be worth the investment as highlighted by its exercise and real world operational results, as well as the routine demand for its services and capabilities by combatant commanders. Correspondingly, a JAMDC would also be expensive up front, but pay off in the long term.

In review, considering the above discussion regarding specifics of effective JTMD C2 for active defense and NMD-TMD integration, it is apparent that a correctly postured and resourced JAMDC could offer regional commanders their much needed JTMD C2 capability, while also serving as the full time BMD link between STRATCOM, NORTHCOM, and the remaining regional commands. In order to best achieve these desired effects, the JAMDC should be built upon the same foundations that

the Army applied to generating the 32d AAMDC, and that CFCK applied to integrating technical, operational, and regional expertise. It would be most beneficial to establish a fully exportable JAMDC at the STRATCOM level, capable of rapidly deploying and integrating with a JFC staff. Obviously, each service would have to resource the JAMDC and certain regional commanders with necessary expertise, in order to demonstrate the true benefits of such a unique element. Additionally, as a means to ensure not only planning effectiveness, but execution as well, the JAMDC must routinely train with the regional commanders in their respective joint and combined exercises. As a way of measuring improvement and/or effectiveness, specified BMD tasks from the combatant commander's UJTL would serve as a framework by which exercise and operational results could be analyzed. Additionally, development and integration of annexes and missile defense plans to support OPLANs could also illustrate an enhanced JTMD C2 capability. Keeping all of this in perspective, the bottom line is that a JAMDC would clearly support the needs of today's JFCs, as highlighted by LTG (ret) Jay Garner, former commander of US Army SMDC, and current civil administrator in Iraq, when he said: "One mission need has remained prominent – integrating joint theater missile defense requires the direction of a senior joint leader who must have the authority to coordinate the theater missile defense effort for the joint-force commander. Joint-force theater missile defense coordinators should be the focal point for planning, coordinating, and "deconflicting" the overall theater missile defense operation.”¹⁹

Notes

¹ Joint Chiefs of Staff, Joint Doctrine for Joint Theater Missile Defense, Joint Pub 3-01.5, (Washington D.C: 22 February 1996),vii

² *ibid*, vii-viii

³ *ibid*, I-3

⁴ Thomas, Duffy, “STRATCOM Given Role of Global Integrator for Missile Defense”. Inside the Pentagon, 24 January 2003, <<http://www.clw.org/nmd/nmdupdates/030127.html>, 10 April 2003

⁵ Kenneth P Werrell, Archie, Flak, AAA, and SAM, (Maxwell AFB, Alabama, Air University Press, 1988), 19

⁶ Joint Pub 3-01.5, II-1

⁷ *ibid*, II-7

⁸ *ibid*, x

⁹ *ibid*, xi

¹⁰ Joint Chiefs of Staff . Doctrine for Joint Operations, Joint Pub 3-0, (Washington D.C: 10 September 2001),GL-4, Joint Doctrine for Countering Air and Missile Threats, Joint Pub 3-01, (Washington D.C: 19 October 1999), vii

¹¹ Joint Pub 3-01.5,II-7

¹² US Department of the Army. Army Air and Missile Defense Command Operations, FM 44-94, (Washington D.C: 31 march 2000), 1-1 to 1-3

¹³ Joint Pub 3-01.3 First Draft, II-2

¹⁴ Dale C. Eikmeier, COL., “Organizing for Success: TMD in Korea”, Air and Space Power Chronicles, 3 January 2001, [http://www.airpower.maxwell.af.mil/airchronicles/cc/Eikmeier.html/](http://www.airpower.maxwell.af.mil/airchronicles/cc/Eikmeier.html) (28 March 2003),2-5

¹⁵ Joint Pub 3-01, vii

¹⁶ Thomas Duffy

¹⁷ “United States Strategic Command”, <http://www.spacecom.mil/>, 10 April 2003

Notes

¹⁸ Thomas Duffy

¹⁹ Edward B. Schmidt, LTC USAF, “TBMD, Who’s fight is it?”, (US Army War College, Carlisle PA., 1999), 24

Bibliography

“BMC3I Battle Management, Command, Control, Communications and Intelligence”. 28 December 1997, <<http://www.fas.org/spp/starwars/program/bmc3i.htm/>> (10 April 2003)

Duffy, Thomas, “STRATCOM Given Role of Global Integrator for Missile Defense”. Inside the Pentagon, 24 January 2003, <<http://www.clw.org/nmd/nmdupdates/030127.html>, 10 April 2003

Eikmeier, Dale C. COL., “Organizing for Success: TMD in Korea”, Air and Space Power Chronicles, 3 January 2001, <http://www.airpower.maxwell.af.mil/airchronicles/cc/Eikmeier.html/> (28 March 2003)

Gordon, Michael R. and Trainor, Bernard E. (Gen) The General’s War, New York: Little, Brown & Company, 1995

Martel, William C., The Technological Arsenal, Washington : Smithsonian Institution, 2001

Missile Defense Agency, “Mission Statement”, <<http://www.acq.osd.mil/bmdo/bmdolink/html/mission.html>>, 10 April 2003

Schmidt, Edward B. LTC USAF, “TBMD, Who’s fight is it?”, US Army War College, Carlisle PA., 1999

“SMDC Mission”, <<http://www.smdc.army.mil/MAIN.contents.html>, 10 April 2003

“United States Strategic Command”, <http://www.spacecom.mil/>, 10 April 2003

US Department of the Army. Army Air and Missile Defense Command Operations, FM 44-94, Washington D.C: 31 march 2000

US Department of Defense, Report of the Defense Science Board/Defense Policy Board Task Force on Theater Missile Defense, OSD, Washington D.C. 1996

US Joint Chiefs of Staff . Doctrine for Joint Operations, Joint Pub 3-0, Washington D.C: 10 September 2001

US Joint Chiefs of Staff . Joint Doctrine for Countering Air and Missile Threats, Joint Pub 3-01, Washington D.C: 19 October 1999

US Joint Chiefs of Staff. Aerospace Defense of North America. Joint Pub 3-01.1 Washington D.C.:1 November 1996

Bibliography

US Joint Chiefs of Staff. Joint Doctrine for Defensive Operations for Countering Air and Missile Threats, Joint Pub 3-01.3, Washington D.C: First Draft, 01 March 2001

US Joint Chiefs of Staff. Joint Doctrine for Joint Theater Missile Defense, Joint Pub 3-01.5, Washington D.C: 22 February 1996

US President. Unified Command Plan. Washington D.C. 30 April 2002

Werrell, Kenneth P. Archie, Flak, AAA, and SAM, Maxwell AFB, Alabama, Air University Press, 1988